Docket/App No.: 1440.1027-005

Title: Anti-Angiogenic Proteins and Fragments and Methods of

entors: Raghuram Kalluri

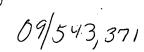


FIG. 1A

pET22b(+) forward primer:

5'-CGGGATCCT TCT GTT GAT CAC GGC TTC-3' (SEQ ID NO:3)

pET22b(+) reverse primer:

5'-CCCAAGCTT TGT TCT CAT ACA GAC-3' (SEQ ID NO:4)

pPICZαA forward primer:

5'-TTCGGAATTC TCT GTT GAT CAC GGC TTC-3' (SEQ ID NO:15)

pPICZαA reverse primer:

5'-TGCTCTAGAGG TGT TCT TCT CAT ACA GAC TTG GCA-3' (SEQ ID NO:16)

	5		10	1!	5	20		25	. 3	0	35		40	45
tct	att	gat	cac	<u>aad</u>	c tt	ct ct	t gt	g ac	c ag	g ca	t ag	t caa	aca	ata
	50		55	60)	65		70	. 7	5	80		Ò.E	0.0
gat	gac	cca	cag	tgt	cci	t tai	t gg	gac	c aaa	a ati	t ctt	tac	cac	90 9gg :
	95	1	.00	105	5 .	110		115	120	1	125	7	2.0	125
tac	tct	ttg	ctc	tac	gt	g caa	a gg	c aai	t gaa	, a cad	1 acc	r cat	30	135 cag
1	40	.1	45	150)	155		160	165					
gac	ttg					ago	tad	e ata	ב כמכ	, , aac	170	ı agc	75	180
1	85		90	195	:	200								
			_			∠uu `att	220	205	210	· +~-	215	2 ttt	20	225
2.	3 0		35											
				240		245	2	250	255		260	. 2	65	270
2.	75				cac	. cgg		LCC	acc		gag	ccc	atg	CCC.
	. –		80	285		290	2	95	300		305	3:	10	315
atg t	-ca	acg	gca				999	gaa	aac	ata	aga	cca	ttt	att
		32		330		335	3	40	345		350	35	55	360
agt a	.99	tgt	gct	gtg	tgt	gag	gcg	cct	gcc	atg	gtg	atg	gcc	gtg
36	55	3 7	70	375		380	3	85	390		305	4.0		405
.cac a	ıgc	cag	acc	att	cag	atc	cca	ccg	tgc	ccc	agc	999	tgg	tcc
41	. 0	4 1	L5	420		425	4	30	435		110	11	F	450
tcg c	tg :	tgg	atc	ggc	tac	tct	ttt	gtg	atg	cac	acc	aqc	act	aat
45	5	46	50	465	4	470	4	75	480		125	40	0	405
gcaig	aa q	ggc	tct	ggc	caa	gcc	ctg	gcg	tcc	ccc	aac	tcc	tac	eta
50	0	50		510					525					
gag g	ag t	tt	aga	agt	gcg	cca	ttc.	atc	gag	tat	Cac	23	5 cat	540
54	5	55				560								
acc t					qca	aac	act	tac	5/U	. :	575 + ~ ~	58	0	585
59	0	59		600									gcc	acc
	_				ata		6]	10 .	615	6	20	62	5	630
ata g				- A -	~ cg		aay	aay	CCE	acg	ccg	tcc a	acc	ttg
	-	64 'aa '	-	545 Sta	6	50	65	55	660	6	65	670)	675
aag go	y	י בכ	- 3uy (9	ege	acg	cac	gtc	agc	cgc	tgc	<u>caa c</u>	atc	<u>tgt</u>
680	_	68		590										
atg ac	ıa a	ga (<u>aca</u> t	aa	(SI	EQ ID	NO:1)						
						•								

Docket/App No.: 1440.1027-005

Title: Anti-Angiogenic Proteins and Fragments and Methods of the Thereof

hventors: Raghuram Kalluri

FIG. 1B

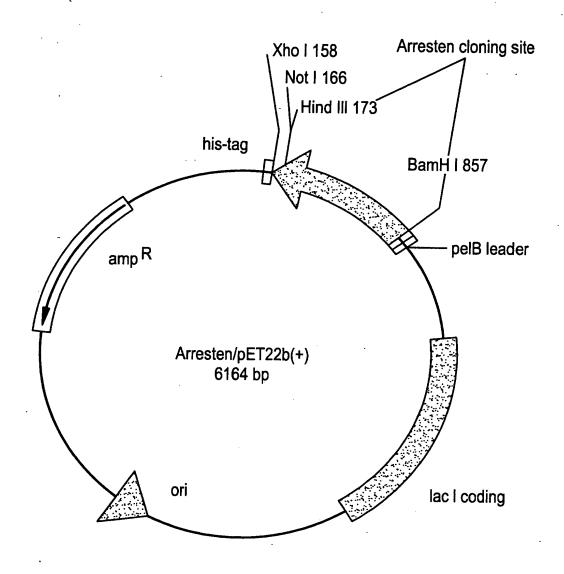
SVD HGF LVT RHS QTI DDP QCP SGT KIL YHG YSL LYV QGN ERA HGQ 60. DLG TAG SCL RKF STM PFL FCN INN VCN FAS RND YSY WLS TPE PMP MSM API TGE NIR PFI SRC AVC EAP AMV MAV HSQ TIQ IPP CPS GWS 150. SLW IGY SFV MHT SAG AEG SGQ ALA SPG SCL EEF RSA PFI ECH GRG TCN YYA NAY SFW LAT IER SEM FKK PTP STL KAG ELR THV SRC QVC MRR T

(SEQ ID NO:2)

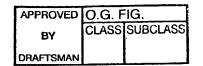
Docket/App No.: 1440.1027-005

e: Anti-Angiogenic Proteins and Fragments and Methods of Usa entors: Raghuram Kalluri

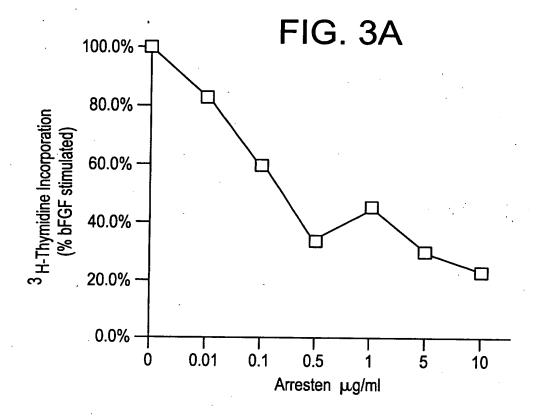
FIG. 2

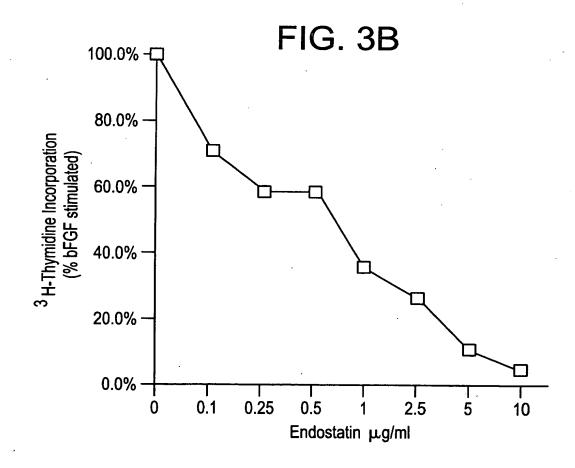


Forward primer: 5'-cgggatccttctgttgatcacggcttc-3' Reverse primer: 5'-cccaagctttgttcttctcatacagac-3'



Title: Anti-Angiogenic Proteins and Fragments and Methods of





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FIG. 4A

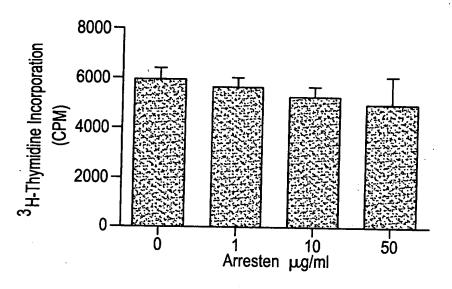
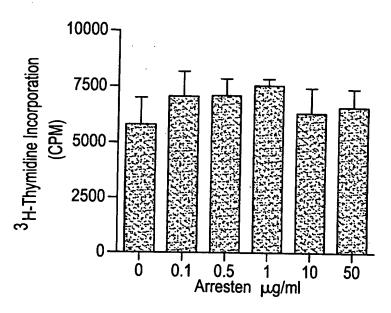


FIG. 4B



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Title: Anti-Angiogenic Proteins and Fragments and Methods of Use Thereof

FIG. 4C

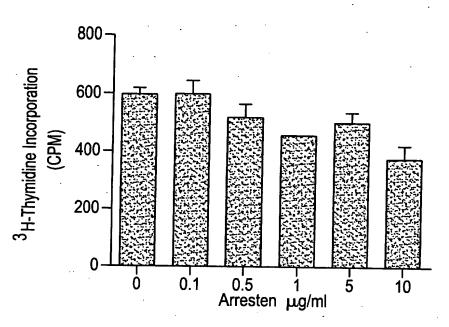
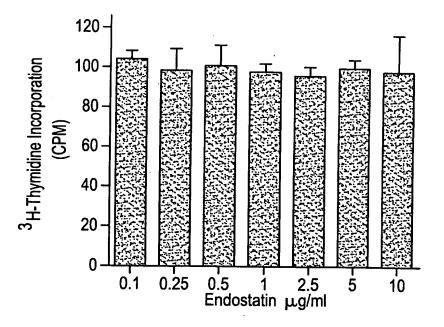


FIG. 4D



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Title: Anti-Angiogenic Proteins and Fragments and Methods of Use Thereof

Inventors: Raghuram Kalluri



Control

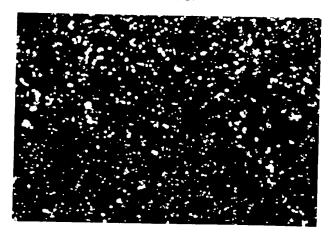


FIG. 5B

Arresten 2 µg/ml

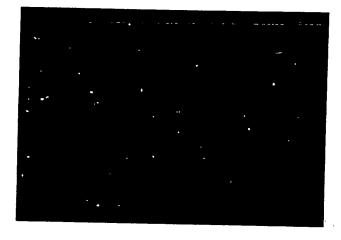


FIG. 5C

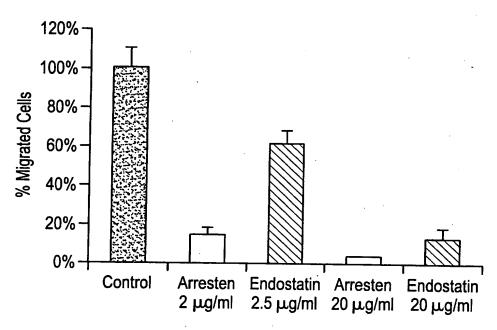
Endostatin 20 μg/ml

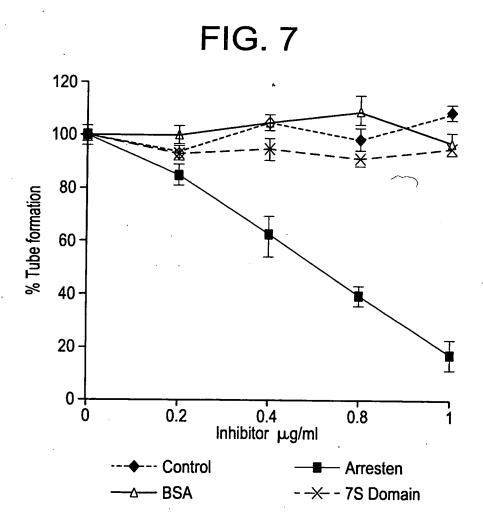


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Title: Anti-Angiogenic Proteins and Fragments and Methods of

FIG. 6





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Title: Anti-Angiogenic Proteins and Fragments and Methods of the

FIG. 8A

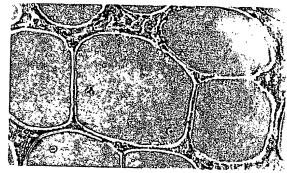
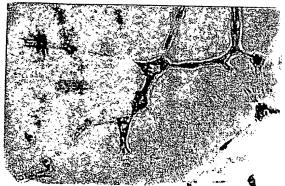
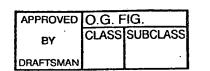
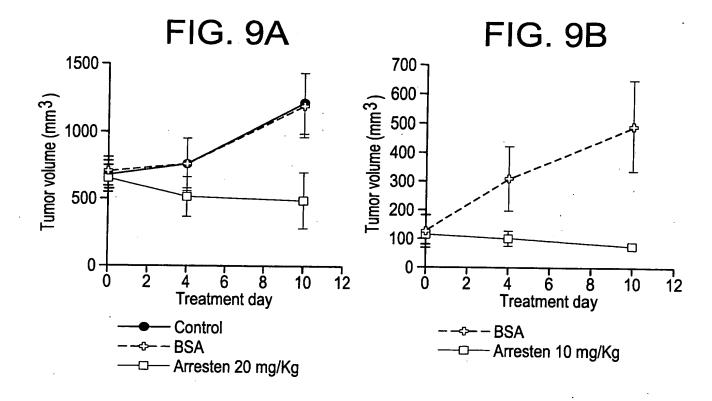


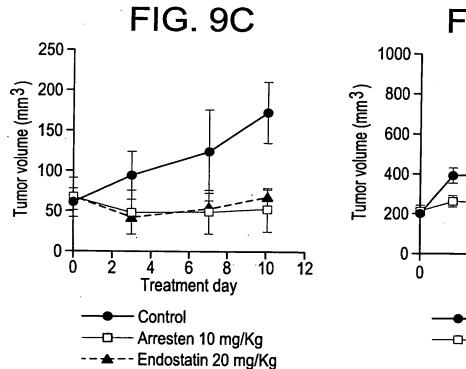
FIG. 8B

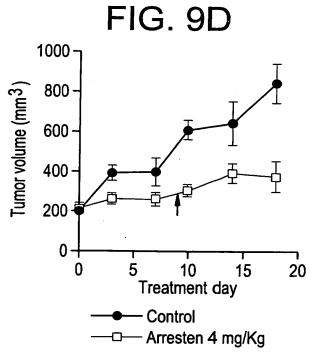




Title: Anti-Angiogenic Proteins and Fragments and Methods of Use Thereof







APPROVED	O.G. FIG.				
BY	CLASS	SUBCLASS			
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Title: Anti-Angiogenic Proteins and Fragments and Methods of Use Thereof

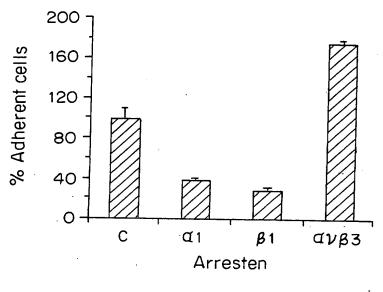
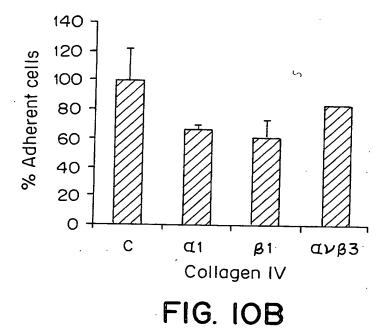


FIG. IOA



Docket/App No.: 1440.1027-005

Title: Anti-Angiogenic Proteins and Fragments and Methods of Use Thereof

Inventors: Raghuram Kalluri

FIG. 11A

pET22b(+) forward primer:

5'-CGGGATCCT GTC AGC ATC GGC TAC CTC-3' (SEQ ID NO:7)

pET22b(+) reverse primer:

5'-CCCAAGCTT <u>CAG GTT CTT CAT GCA CAC</u>-3' (SEQ ID NO:8)

pPICZαA forward primer:

5'-TTCGGAATTC <u>GTC AGC ATC GGC TAC CTC CTG</u>-3' (SEQ ID NO:17) pPICZ α A reverse primer:

5'-GGGGTACCCC CAG GTT CTT CAT GCA CAC CTG G-3' (SEQ ID NO:18)

gtc	5 agc		10 <u>ggc</u>		ctc		gtg					acq	40 gac	45 caq
	50			60		65			75		80			90
gag													gga	
	_		00	105		110							30	135
agc	ctg	ctg	tac										cag	
	140		45	150		155		60	165		170		75	180
ctg	ggg	ctg	gcg	ggc									atg	
	185		90	195		200					215		20	225
ttc	ctg	tac	tgc							_			agc	
		2		240		245		50			260		65	270
aac	gac	aag	tcc	tac	tgg	ctc							ccc	
	275		В0	285		290		95	300		305		10	315
atg	ccc	gtg	gcc	gag	gac	gag	atc	aag					cgc	
:	320	32	25	3,30	3	335	3	40	345	3	350	3 5	55	360
tct	gtg	tgt	gag	gcc	ccg	gcc	atc	gcc	atc	gcg	gtc	cac	agt	cag
3	365	3 7	70	375	3	380	3	85	390	3	95	4 (00	405
gat	gtc	tcc	atc	cca	cac	tgc	cca	gct	999	tgg	cgg	agt	ttg	tgg
	10		L5	420		125		30	435		40	44		450
atc	gga	tat	tcc	ttc	ctc	atg	cac	acg	gcg	gcg	gga	gac	gaa	ggc
		4 6				Ŀ70				4			90	495
ggt	ggc	caa	tca	ctg	gtg	tca	ccg	ggc	agc	tgt	cta	gag	gac	ttc
_	500)5		5			20	525		30		5	540
cgc	gcc	aca	cca	ttc	atc	gaa	tgc	aat	gga	ggc	cgc	ggc	acc	tgc
	45	55	_	555		60	56		570		75	58		585
cac	tac	tac	gcc	aac	aag	tac	agc	ttc	tgg	ctg	acc	acc	att	CCC
	90	59				05				6				630
gag	cag	agc	ttc	cag	ggc	tcg	CCC	tcc	gcc	gac	acg	ctc	aag	gcc
		64			6					6				675
ggc	ctc	atc	cgc	aca	cac	atc	agc	cgc	tg <u>c</u>	cag	<u>gtg</u>	tgc	atg	aag
	80													
<u>aac</u>	ctq	tga	(;	SEQ I	D NO:	:5)								

Docket/App No.: 1440.1027-005

Title: Anti-Angiogenic Proteins and Fragments and Methods of Use Thereof

nventors: Raghuram Kalluri

FIG. 11B

VSI GYL LVK HSQ TDQ EPM CPV GMN KLW SGY SLL YFE GQE KAH NQD LGL AGS CLA RFS TMP FLY CNP GDV CYY ASR NDK SYW LST TAP LPM . 110 MPV AED EIK PYI SRC SVC EAP AIA IAV HSQ DVS IPH CPA GWR SLW IGY SFL MHT AAG DEG GGQ SLV SPG SCL EDF RAT PFI ECN GGR GTC HYY ANK YSF WLT TIP EQS FQG SPS ADT LKA GLI RTH ISR CQV CMK

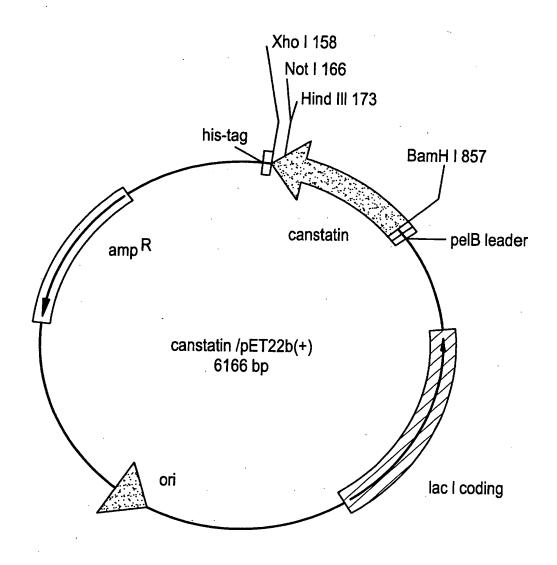
(SEQ ID NO:6) NL

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Title: Anti-Angiogenic Proteins and Fragments and Methods of Use Thereof

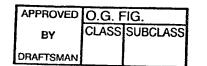
Inventors: Raghuram Kalluri

FIG. 12



Forward primer: 5'-cgggatcctgtcagcatcggctacctc-3'

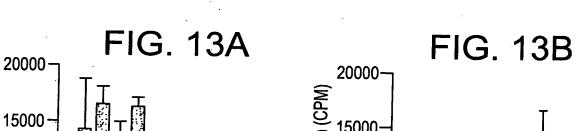
Reverse primer: 5'-cccaagcttcaggttcttcatgcacac-3'

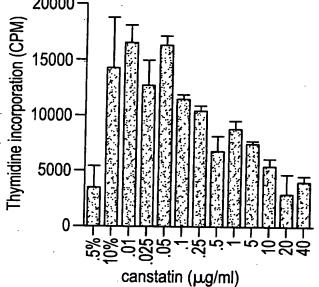


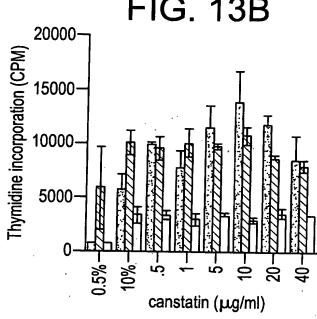
1440.1027-005 Docket/App No.:

Title: Anti-Angiogenic Proteins and Fragments and Methods of Use Thereof

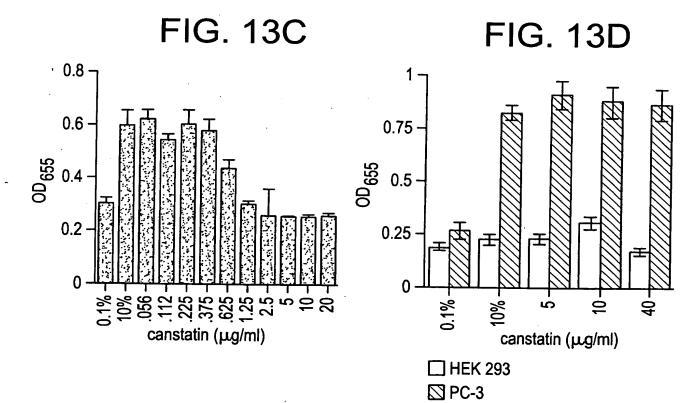
ventors: Raghuram Kalluri

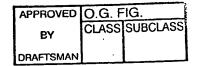






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Title: Anti-Angiogenic Proteins and Fragments and Methods of Use Thereof

FIG. 14

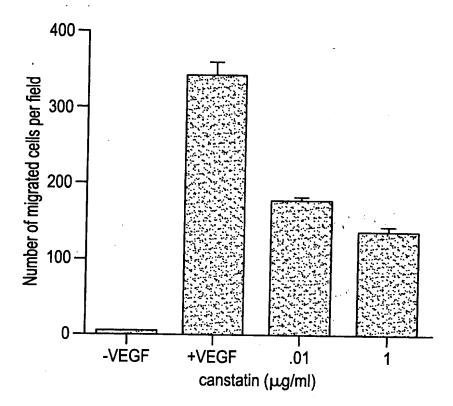
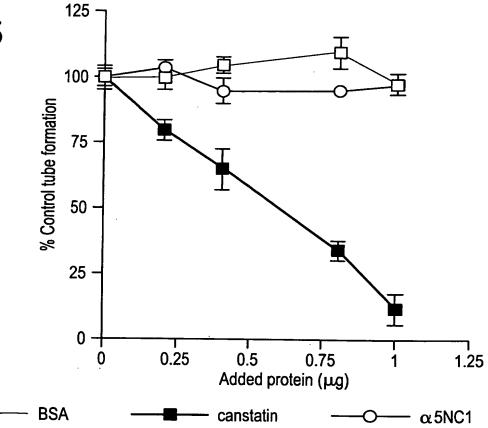


FIG. 15



40000					
APPHOVED	O.G. FIG.				
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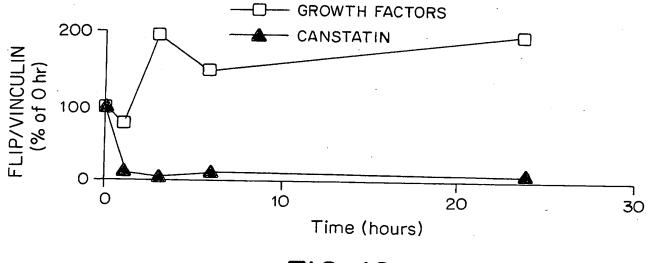
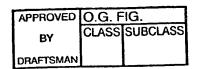


FIG. 16



Title: Anti-Angiogenic Proteins and Fragments and Methods of Use Thereof

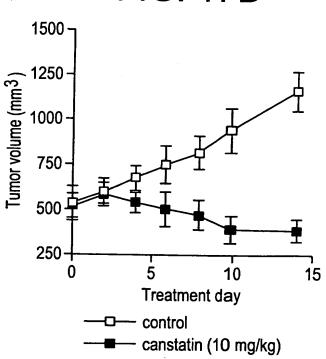
FIG. 17A FIG. 17B Fractional Tumor Volume (V/ V_0) Fractional Tumor Volume (V/ V_0) 2 0 0. .0 つ 15 5 10 15 5 0 10 Treatment day Treatment day control - control canstatin (10 mg/kg) canstatin (3 mg/kg) endostatin (8 mg/kg)

FIG. 17C

400 300 200 100 2.5 5 7.5 10 12.5 Treatment day

— control
— canstatin (10 mg/kg)

FIG. 17D



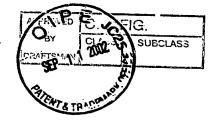


FIG. 18A

pET22b(+) forward primer:

5'-CGG GAT CCG <u>GGT TTG AAA GGA AAA CGT</u>-3' (SEQ ID NO:11) pET22b(+) reverse primer:

5'-CCC AAG CTT TCA GTG TCT TTT CTT CAT-3' (SEQ ID NO:12)

5 10 ggt ttg aaa gga	15 20 <u>aaa cqt</u> gga	25 gac agt	30 gga	35 tca cct	40 gca acc	45 tgg
50 55 aca acg aga ggc	60 65	70	75	80	85	90
95 100 att cct tca tgt	105 110	115	120	125	130	135
140 145 tct ttt ctt ttt		160 aat caa		170 gcc cac	175 gga caa	180 gac
185 190 ctt gga act ctt				215 ttt acc	220 aca atg	225 cca
230 235 ttc tta ttc tgc					265 gca tct	270 cga
275 280 aat gat tat tca	285 290 tac tgg ctg	295 tca aca	300 cca	305 gct ctg	310 atg cca	315 atg
320 325 aac atg gct ccc	330 335 att act ggo	340 aga gcc		350 gag cct	355 tat ata	360 agc
365 370 aga tgc act gtt	375 380 tgt gaa ggt			395 gcc ata		405 cac
410 415 agc caa acc act		430 cca tgt			445 tgg att	450 tct
455 460 ctc tgg aaa gga		475 atc atg		485 aca agt		495 tct
500 505 gag ggc acc ggg	510 515 caa gca ctg	520 gcc tcc	525 cct	530 ggc tcc	535 tgc ctg	540 gaa
545 550 gaa ttc cga gcc	555 560 agc cca ttt	565 cta gaa	570 tgt	575 cat gga	580 aga gga	585 acg
590 595 tgc aac tac tat		610 tac agt			625 gct tca	630 tta
635 640 aac cca gaa aga		655 aag cct		665 cca tca	670 act gtg	675 aaa
680 685 gct ggg gaa tta		700 ata agt		710 tgt cag	715 gtg tgc	720 <u>atq</u>
725 730 aag aaa aga cac	735 <u>tga</u> (SE	Q ID NO:9)				

pET22b-α3(IV) NC1 = nucleotides 1 through 732 Tumstatin 333 = nucleotides 1 through 372 Tumstatin 334 - nucleotide 373 through 732

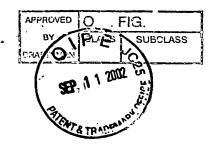


FIG. 18B

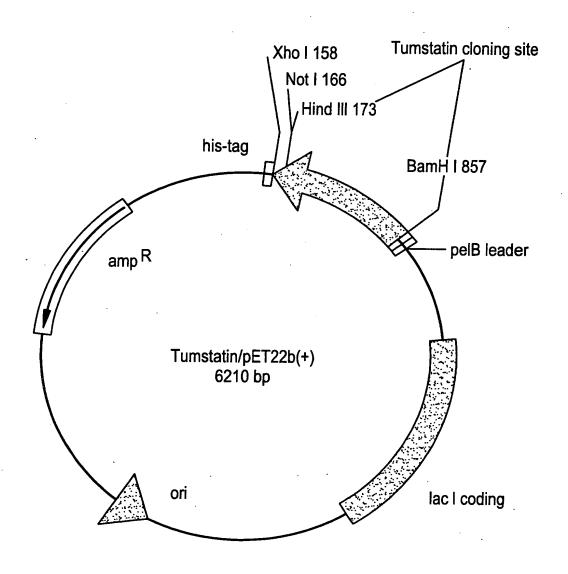
GLK GKR GDS GSP ATW TTR GFV FTR HSQ TTA IPS CPE GTV PLY SGF SFL FVQ GNQ RAH GQD LGT LGS CLQ RFT TMP FLF CNV NDV CNF ASR NDY SYW LST PAL MPM NMA PIT GRA LEP YIS RCT VCE GPA IAI AVH SQT TDI PPC PHG WIS LWK GFS FIM FTS AGS EGT GQA LAS PGS CLE EFR ASP FLE CHG RGT CNY YSN SYS FWL ASL NPE RMF RKP IPS TVK AGE LEK IIS RCQ VCM KKR H (SEQ ID NO:10)

pET22b α3(IV) NC1 = residues 1 through 244 Tumstatin 333 = residues 1 through 124 Tumstatin 334 = residues 125 through 244

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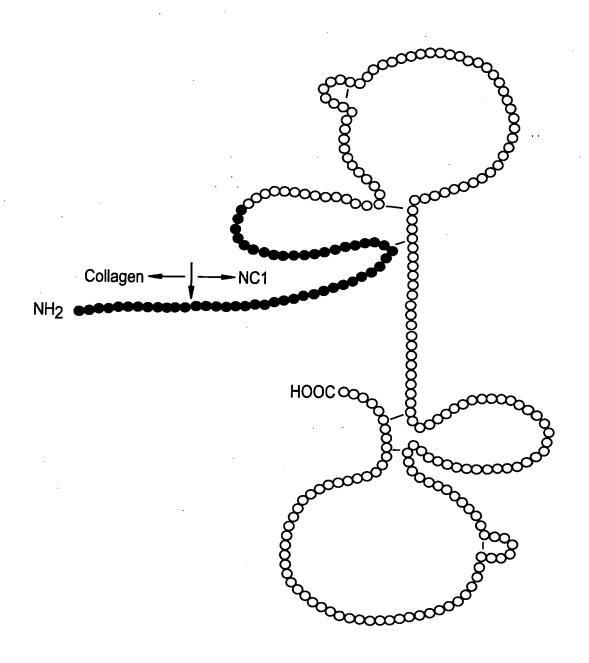
FIG. 19



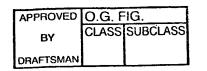
Docket/App No.: 1440.1027-005

Title: Anti-Angiogenic Proteins and Fragments and Methods

FIG. 20



APPROVED O.G. FIG. BY CLASS SUBCLASS DRAFTSMAN	Docket/App No.: 1440.1027-005 Title: Anti-Angiogenic Proteins and Fragments and Methods of Use Thereof Inventors: Raghuram Kalluri
	Incorporation of [3H]-thymidine (CPM) Sign of the state
	Incorporation of [3H]-thymidine (CPM) PG. 21B O.1% FBS No. 1 M FBS Lumstatin (µg/ml)
	Incorporation of [3H]-thymidine (CPM) Incorporation of [3H]-thymidine (CPM) O.1% FBS 20% FBS 10.01 10.01 10.01 10.01



Title: Anti-Angiogenic Proteins and Fragments and Methods

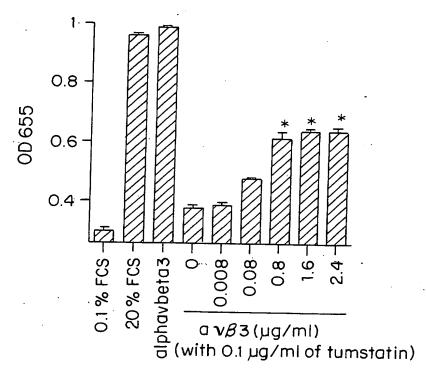
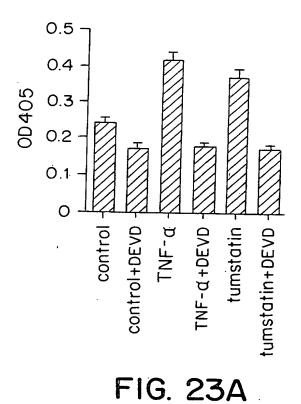


FIG. 22



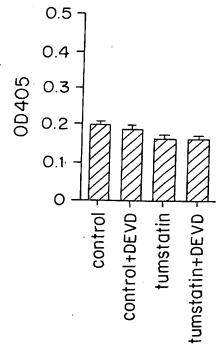
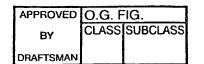


FIG. 23B



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e Thereof

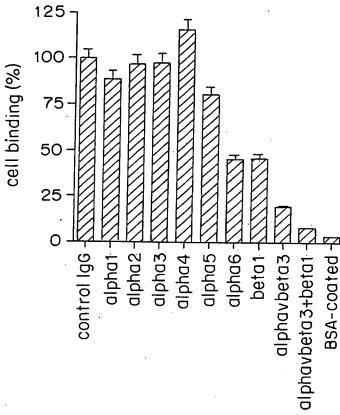


FIG. 24A

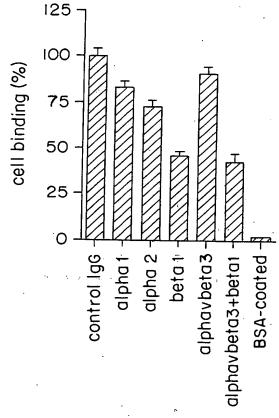
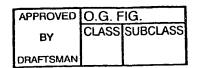


FIG. 24B



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ventors: Raghuram Kalluri

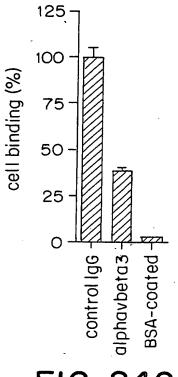
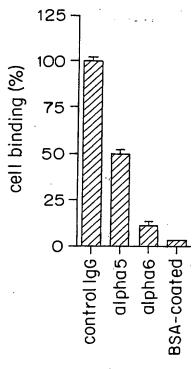
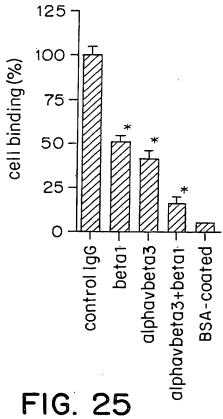


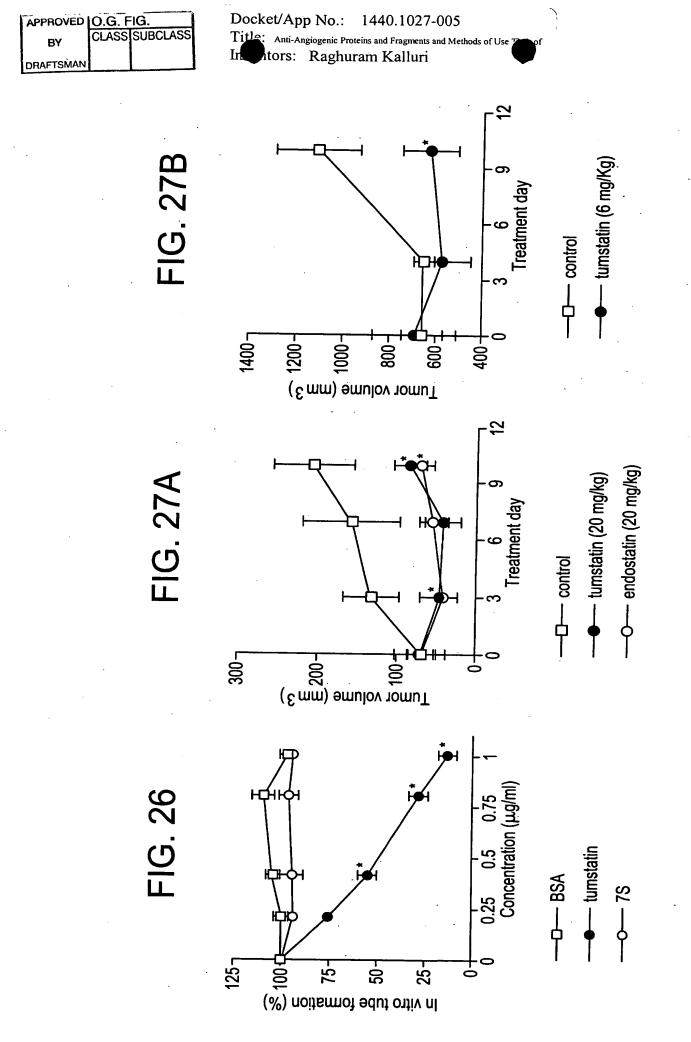
FIG. 24C



Thereof

FIG. 24D

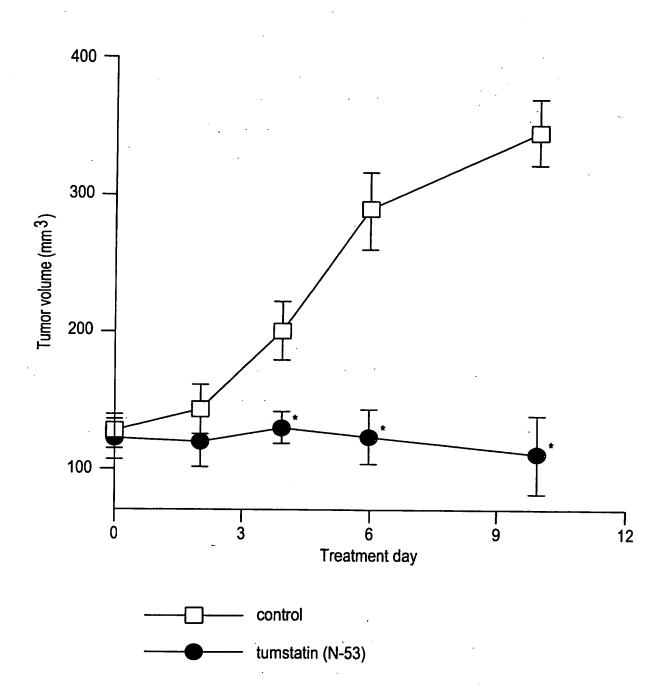




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FIG. 28



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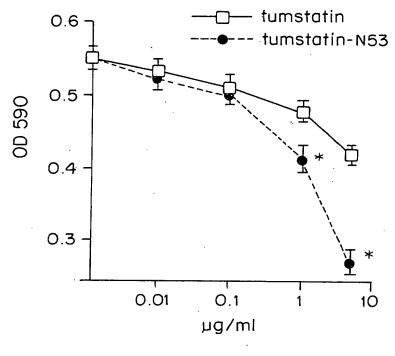
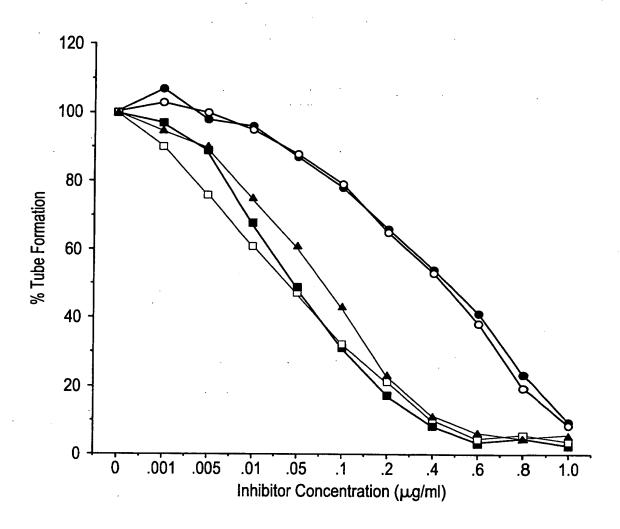


FIG. 29

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FIG. 30

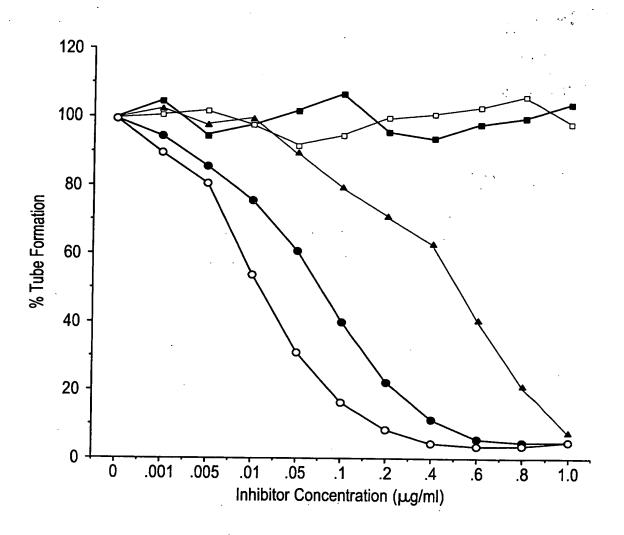


- --- Arresten
- —o— Canstatin
- = 12 kDa fragment of Arresten
- --- 8 kDa fragment of Arresten
- → 10 kDa fragment of Canstatin

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FIG. 31



- ── Tumstatin Fragment 333
- —o— Tumstatin Fragment 334
- ── BSA
- --- α6
- ─<u>◆</u> Tumstatin

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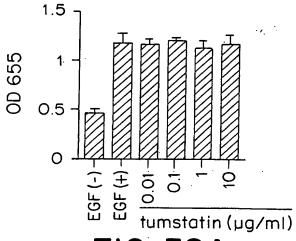


FIG. 32A

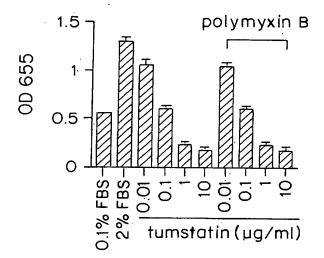


FIG. 32B

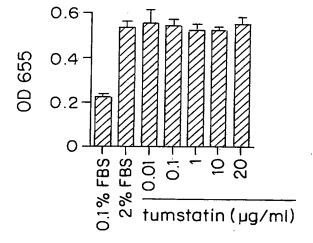


FIG. 32C

APPROVED	O.G. FIG.		
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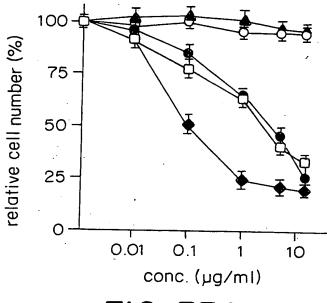


FIG. 33A

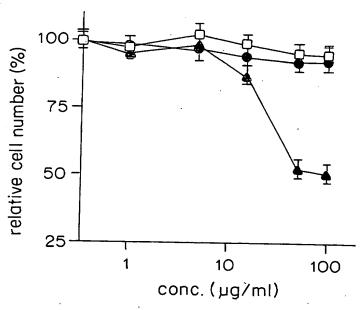


FIG. 33B

	O.G. FIG.		
вч	CLASS	SUBCLASS	
DRAFTSMAN			

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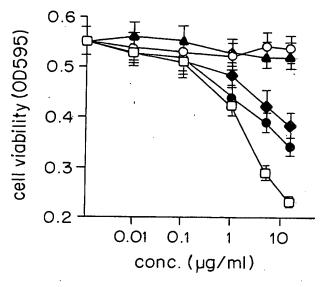
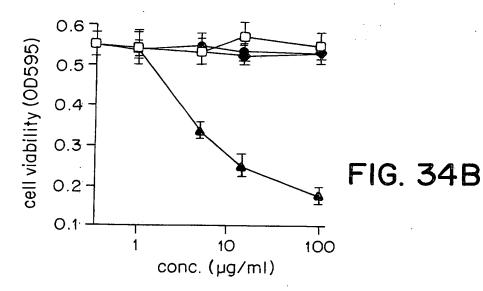
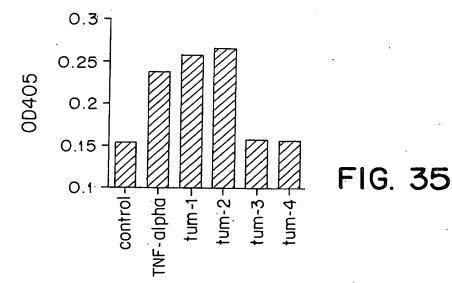
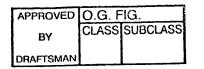


FIG. 34A

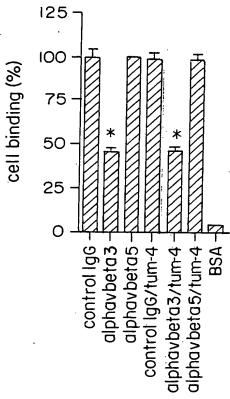






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125 100 cell binding (%) 75 50 25 0 d:phavbeta3 alphavbeta5

FIG. 36B

FIG. 36A

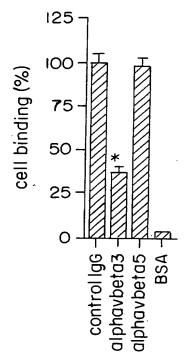


FIG. 36C

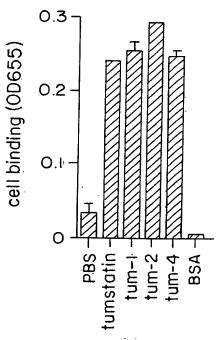
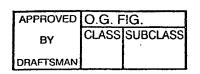


FIG. 37



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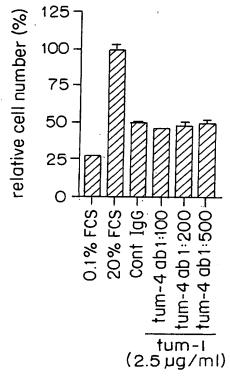


FIG. 38A

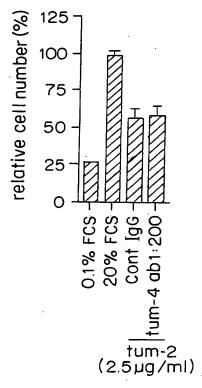


FIG. 38B

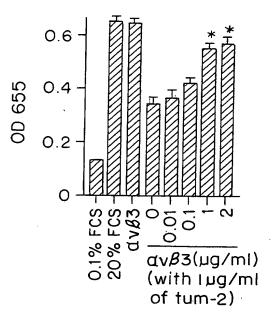


FIG. 38C

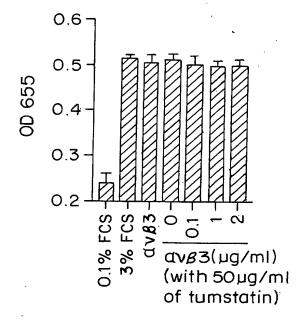
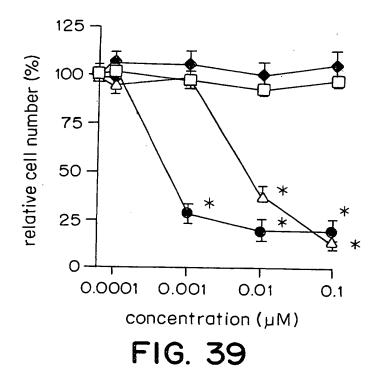


FIG. 38D

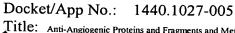
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FIG. 38E



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